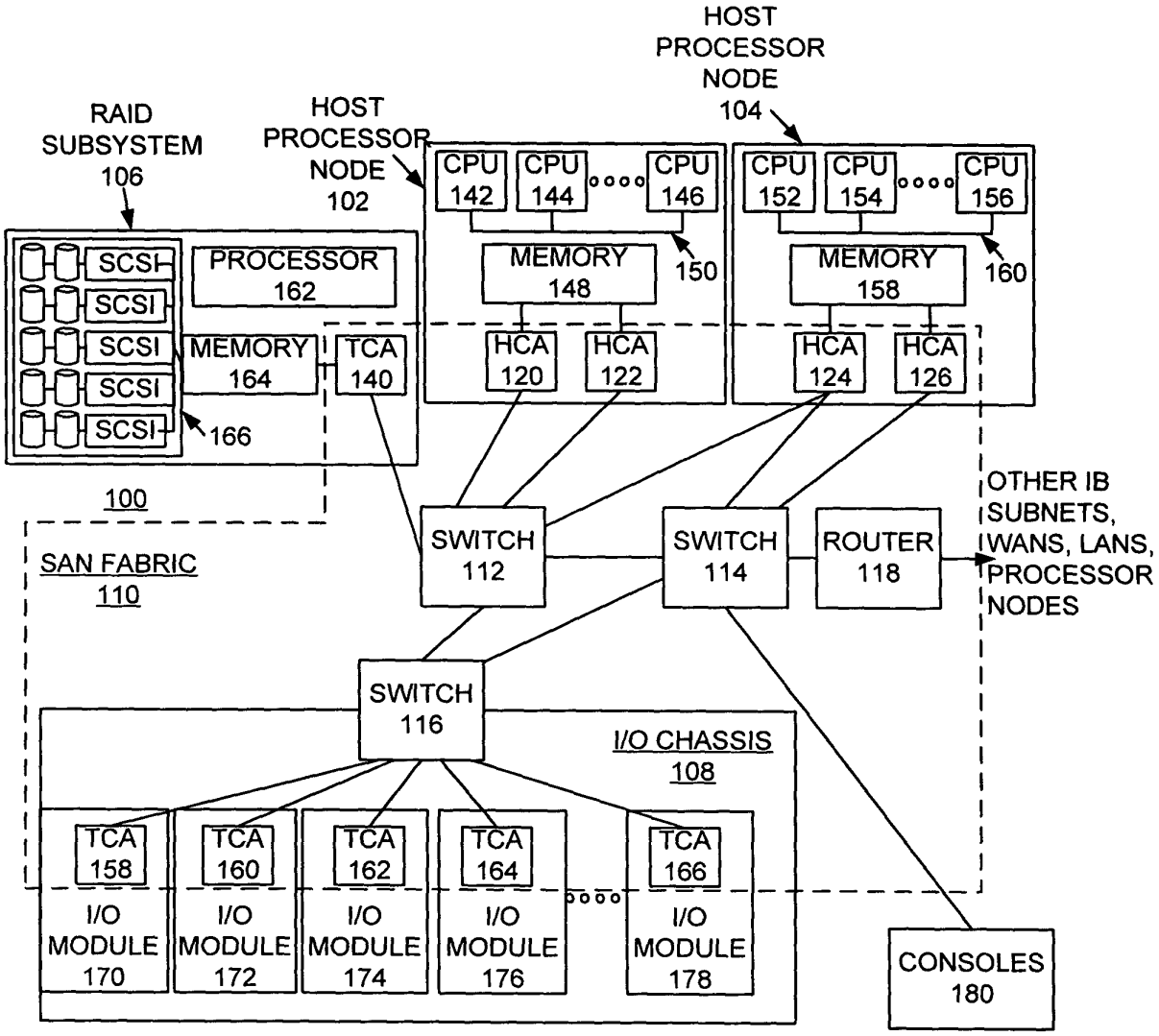

HOST
PROCESSOR
NODE
104
RAID
SUBSYSTEM
106
HOST
PROCESSOR
NODE
102
CPU
142
CPU
144
CPU
146
CPU
152
CPU
154
CPU
156
SCSI
SCSI
SCSI
SCSI
SCSI
PROCESSOR
162
MEMORY
164
TCA
140
166
MEMORY
148
150
MEMORY
158
160
HCA
120
HCA
122
HCA
124
HCA
126
100
SAN FABRIC
110
SWITCH
112
SWITCH
114
ROUTER
118
OTHER IB
SUBNETS,
WANS, LANS,
PROCESSOR
NODES
SWITCH
116
I/O CHASSIS
108
TCA
158
TCA
160
TCA
162
TCA
164
TCA
166
I/O
MODULE
170
I/O
MODULE
172
I/O
MODULE
174
I/O
MODULE
176
I/O
MODULE
178
CONSOLES
180

FIG. 1

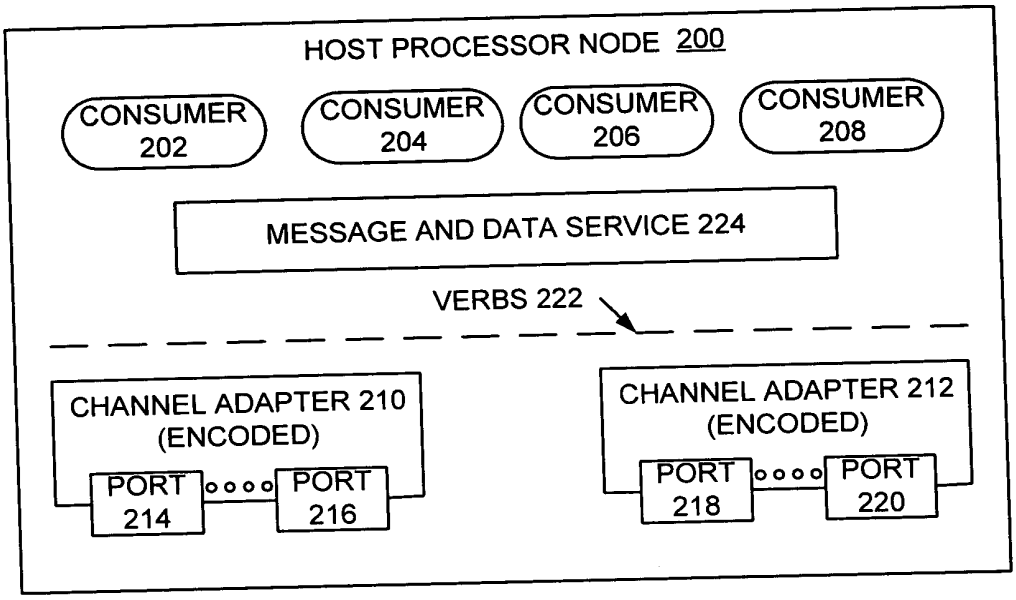

HOST PROCESSOR NODE 200
CONSUMER 202
CONSUMER 204
CONSUMER 206
CONSUMER 208
MESSAGE AND DATA SERVICE 224
VERBS 222
CHANNEL ADAPTER 210 (ENCODED)
PORT 214
PORT 216
CHANNEL ADAPTER 212 (ENCODED)
PORT 218
PORT 220

FIG. 2

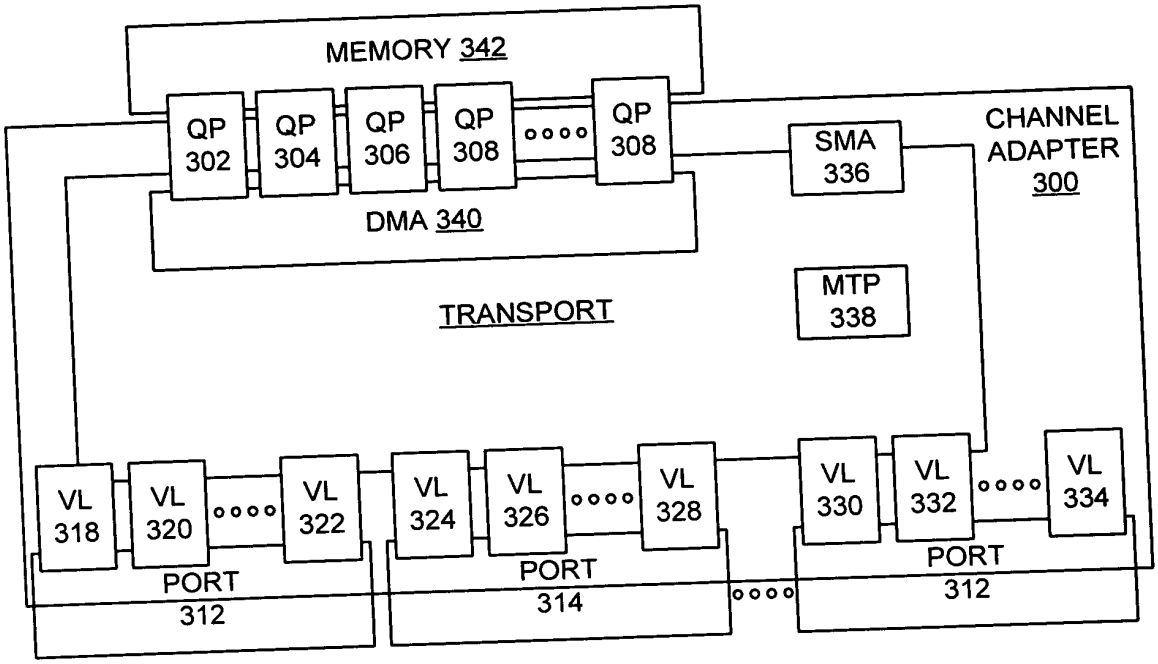

MEMORY 342
QP 302
QP 304
QP 306
QP 308
QP 308
SMA 336
CHANNEL ADAPTER 300
DMA 340
MTP 338
TRANSPORT
VL 318
VL 320
VL 322
VL 324
VL 326
VL 328
VL 330
VL 332
VL 334
PORT 312
PORT 314
PORT 312

FIG. 3

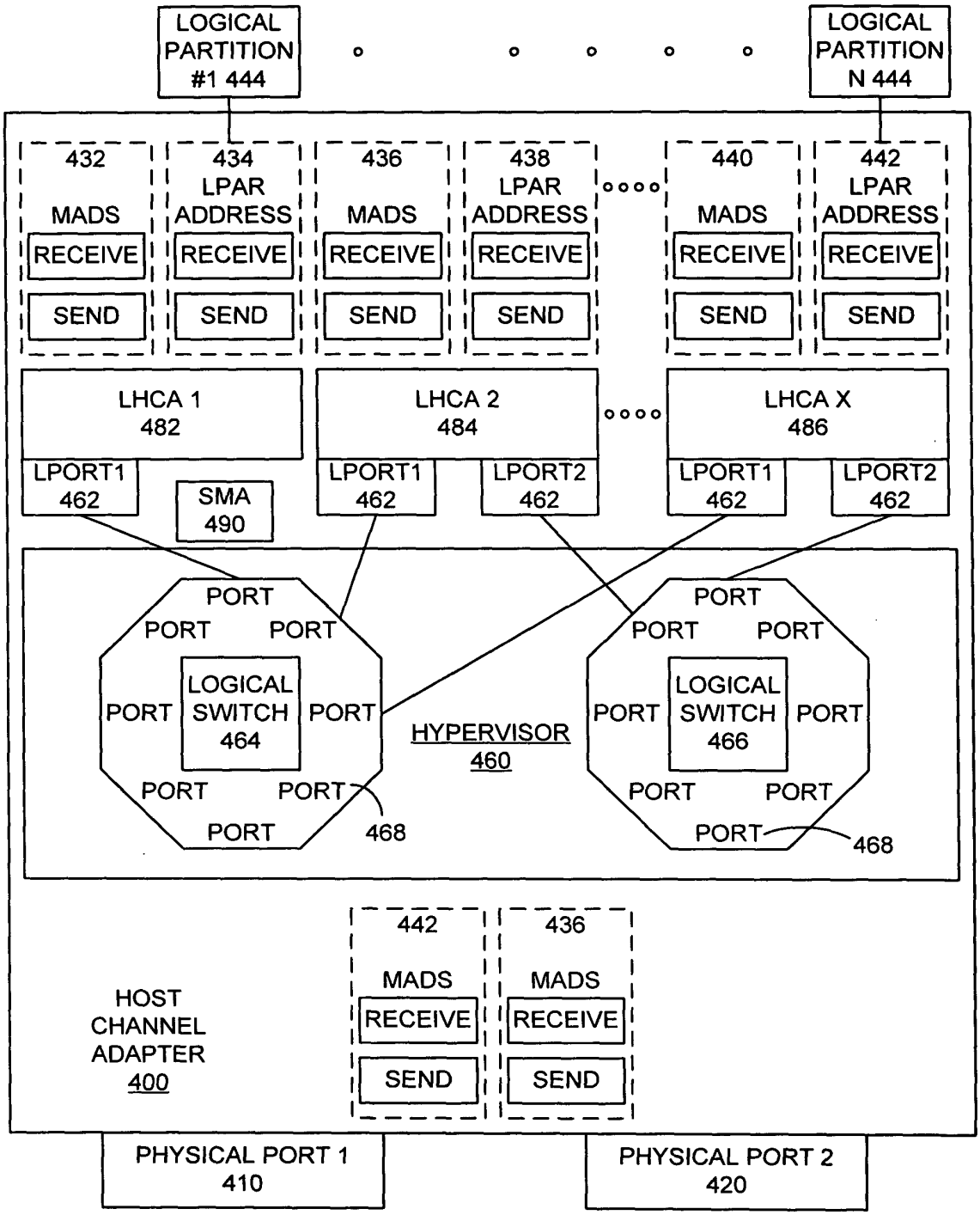
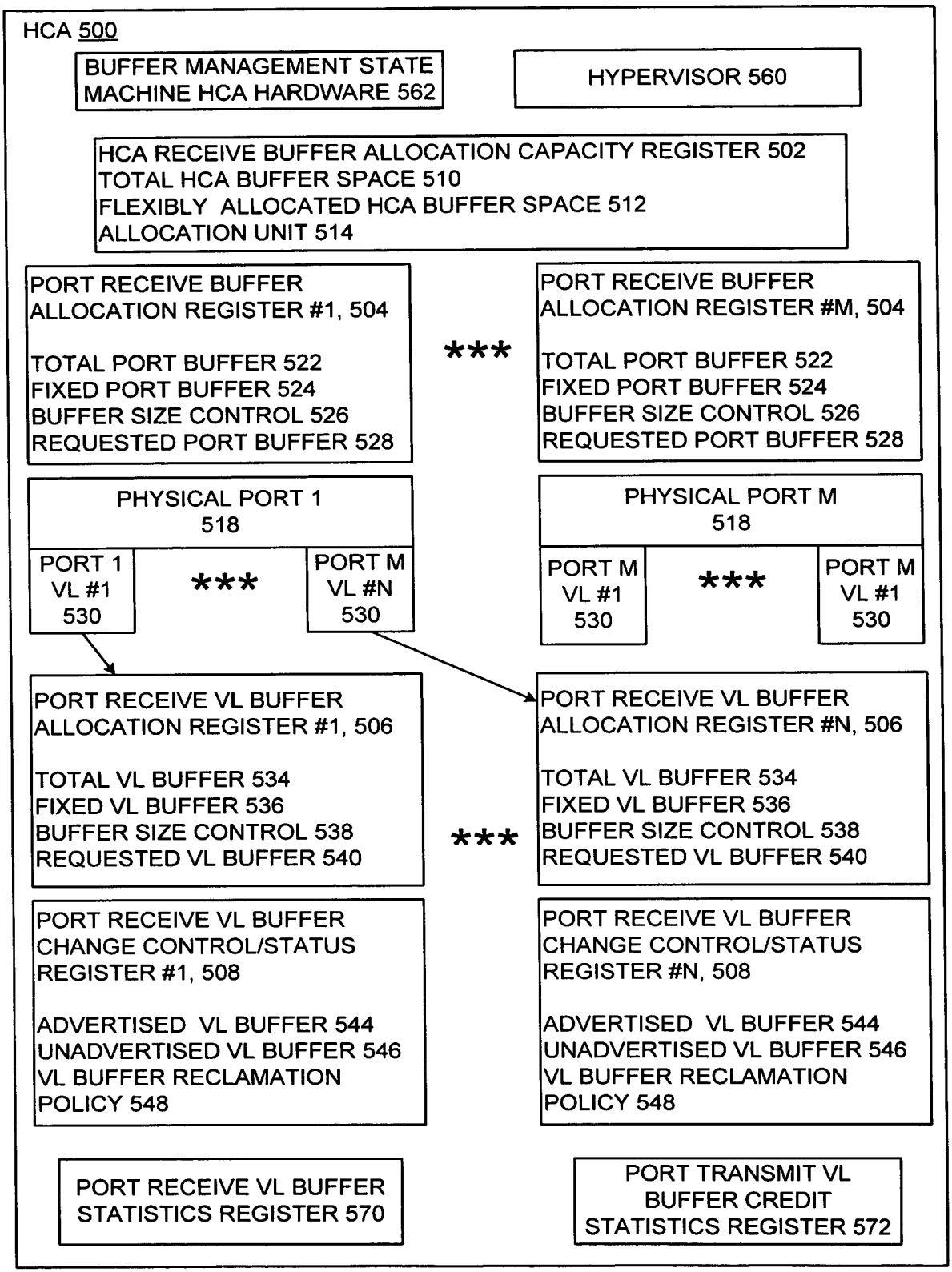

LOGICAL PARTITION #1 444
LOGICAL PARTITION N 444
432
MADS
RECEIVE
SEND
434
LPAR ADDRESS
RECEIVE
SEND
436
MADS
RECEIVE
SEND
438
LPAR ADDRESS
RECEIVE
SEND
440
MADS
RECEIVE
SEND
442
LPAR ADDRESS
RECEIVE
SEND
LHCA 1
482
LHCA 2
484
LHCA X
486
LPORT1
462
SMA
490
LPORT1
462
LPORT2
462
LPORT1
462
LPORT2
462
PORT
LOGICAL SWITCH
464
LOGICAL SWITCH
466
HYPERVISOR
460
468
468
HOST CHANNEL ADAPTER
400
442
MADS
RECEIVE
SEND
436
MADS
RECEIVE
SEND
PHYSICAL PORT 1
410
PHYSICAL PORT 2
420

FIG. 4

FIG. 5


HCA 500
BUFFER MANAGEMENT STATE MACHINE HCA HARDWARE 562
HYPERVISOR 560
HCA RECEIVE BUFFER ALLOCATION CAPACITY REGISTER 502
TOTAL HCA BUFFER SPACE 510
FLEXIBLY ALLOCATED HCA BUFFER SPACE 512
ALLOCATION UNIT 514
PORT RECEIVE BUFFER ALLOCATION REGISTER #1, 504
TOTAL PORT BUFFER 522
FIXED PORT BUFFER 524
BUFFER SIZE CONTROL 526
REQUESTED PORT BUFFER 528
***
PORT RECEIVE BUFFER ALLOCATION REGISTER #M, 504
TOTAL PORT BUFFER 522
FIXED PORT BUFFER 524
BUFFER SIZE CONTROL 526
REQUESTED PORT BUFFER 528
PHYSICAL PORT 1 518
PORT 1 VL #1 530
***
PORT M VL #N 530
PHYSICAL PORT M 518
PORT M VL #1 530
***
PORT M VL #1 530
PORT RECEIVE VL BUFFER ALLOCATION REGISTER #1, 506
TOTAL VL BUFFER 534
FIXED VL BUFFER 536
BUFFER SIZE CONTROL 538
REQUESTED VL BUFFER 540
***
PORT RECEIVE VL BUFFER ALLOCATION REGISTER #N, 506
TOTAL VL BUFFER 534
FIXED VL BUFFER 536
BUFFER SIZE CONTROL 538
REQUESTED VL BUFFER 540
PORT RECEIVE VL BUFFER CHANGE CONTROL/STATUS REGISTER #1, 508
ADVERTISED VL BUFFER 544
UNADVERTISED VL BUFFER 546
VL BUFFER RECLAMATION POLICY 548
PORT RECEIVE VL BUFFER CHANGE CONTROL/STATUS REGISTER #N, 508
ADVERTISED VL BUFFER 544
UNADVERTISED VL BUFFER 546
VL BUFFER RECLAMATION POLICY 548
PORT RECEIVE VL BUFFER STATISTICS REGISTER 570
PORT TRANSMIT VL BUFFER CREDIT STATISTICS REGISTER 572

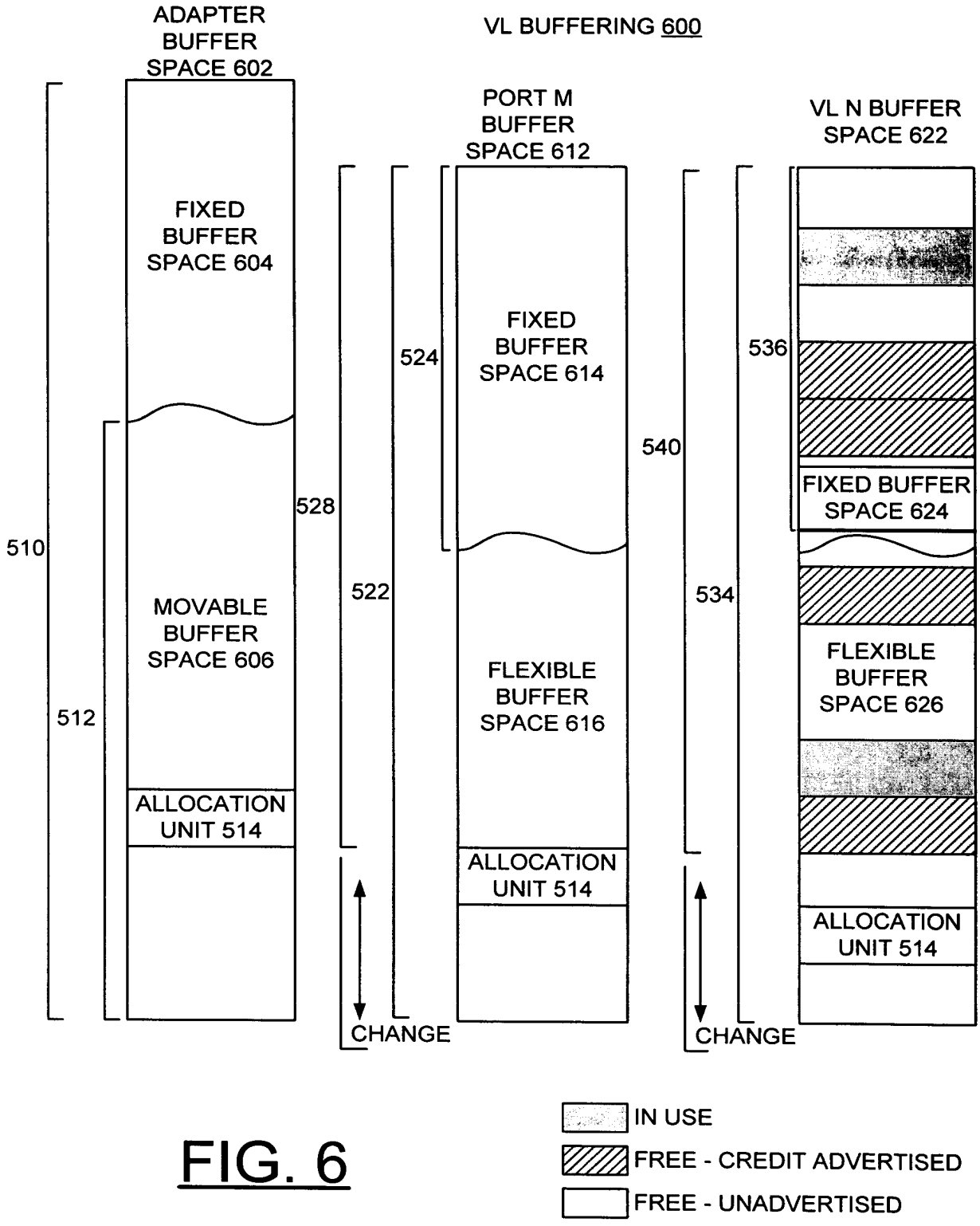
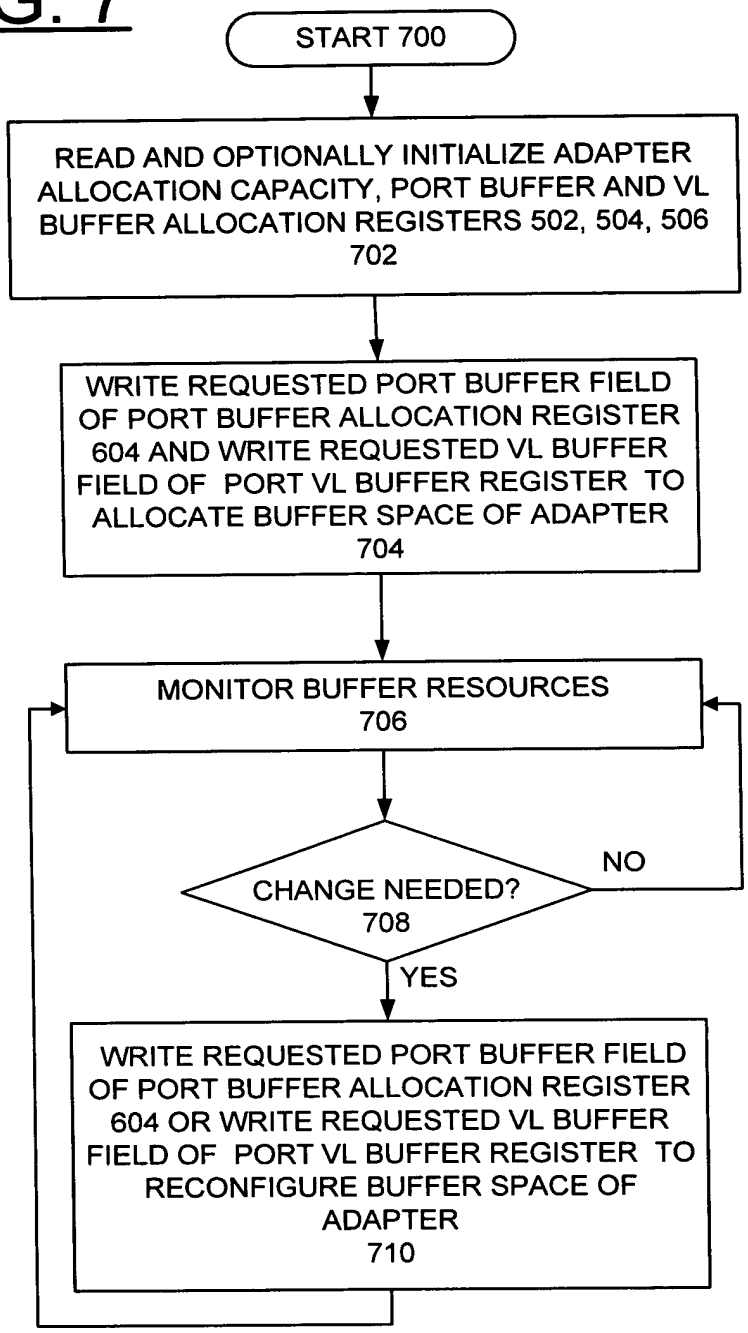

VL BUFFERING 600
ADAPTER BUFFER SPACE 602
PORT M BUFFER SPACE 612
VL N BUFFER SPACE 622
FIXED BUFFER SPACE 604
MOVABLE BUFFER SPACE 606
ALLOCATION UNIT 514
FIXED BUFFER SPACE 614
FLEXIBLE BUFFER SPACE 616
ALLOCATION UNIT 514
FIXED BUFFER SPACE 624
FLEXIBLE BUFFER SPACE 626
ALLOCATION UNIT 514
510
512
528
522
524
CHANGE
540
534
536
CHANGE
IN USE
FREE - CREDIT ADVERTISED
FREE - UNADVERTISED

FIG. 6

FIG. 7


START 700
READ AND OPTIONALLY INITIALIZE ADAPTER ALLOCATION CAPACITY, PORT BUFFER AND VL BUFFER ALLOCATION REGISTERS 502, 504, 506
702
WRITE REQUESTED PORT BUFFER FIELD OF PORT BUFFER ALLOCATION REGISTER 604 AND WRITE REQUESTED VL BUFFER FIELD OF PORT VL BUFFER REGISTER TO ALLOCATE BUFFER SPACE OF ADAPTER
704
MONITOR BUFFER RESOURCES
706
CHANGE NEEDED?
708
NO
YES
WRITE REQUESTED PORT BUFFER FIELD OF PORT BUFFER ALLOCATION REGISTER 604 OR WRITE REQUESTED VL BUFFER FIELD OF PORT VL BUFFER REGISTER TO RECONFIGURE BUFFER SPACE OF ADAPTER
710

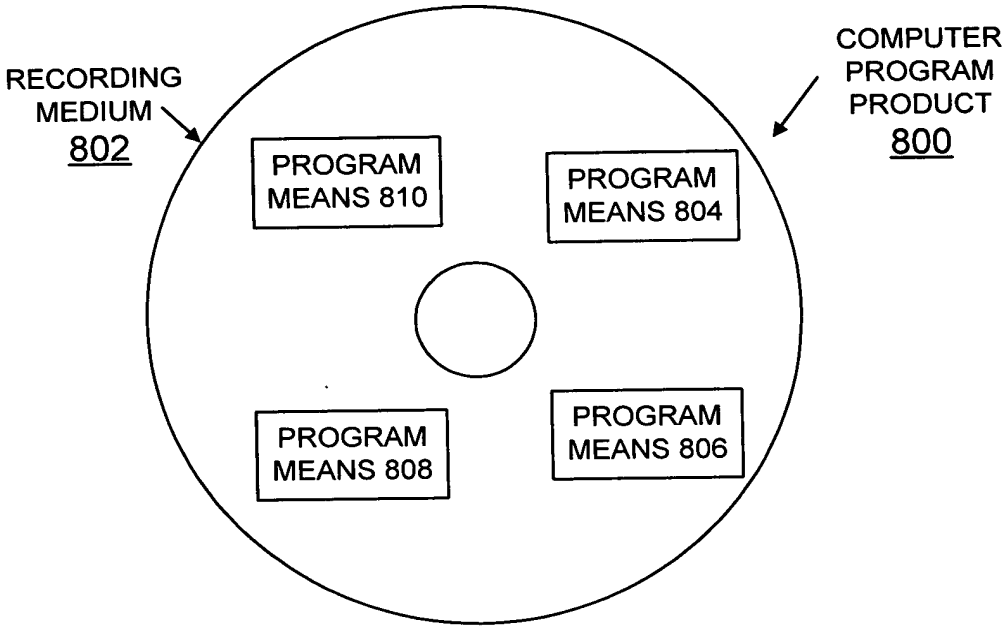

RECORDING MEDIUM
802
COMPUTER PROGRAM PRODUCT
800
PROGRAM MEANS 810
PROGRAM MEANS 804
PROGRAM MEANS 808
PROGRAM MEANS 806

FIG. 8